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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/005,669 | 11/02/2001 | Jie Yang | 57172US002 | 7579 |
| 32692 | 7590 | 10/10/2003 | EXAMINER | |
| 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427 | | | MAKI, STEVEN D | |
| | | ART UNIT | PAPER NUMBER | |
| | | 1733 | | |
| DATE MAILED: 10/10/2003 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/005,669 | YANG ET AL. |
| | Examiner | Art Unit |
| | Steven D. Maki | 1733 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
 Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-41 is/are pending in the application.
 4a) Of the above claim(s) 23-41 is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-22 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____ |
|---|---|

- 1) Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-22, drawn to an adhesive, classified in class 522, subclass 15.
 - II. Claims 23-39, drawn to multilayer assembly, classified in class 428, subclass 411.1.
 - III. Claims 40-41, drawn to method of preparing a multi-layer article, classified in class 156, subclass 327.

- 2) The inventions are distinct, each from the other because:

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination fails to require "wherein the uncured adhesive is optically clear such that the luminous transmission of the composition is greater than 90%, the haze of the composition is less than 2%, and the opacity of the composition is less than 1%, wherein the uncured, curable adhesive can be cured to form an adhesive comprising an interpenetrating polymer network, and wherein after aging the cured adhesive at 90°C for 500 hours the luminous transmission of the cured and aged adhesive is greater than 90%, the haze of the cured and aged adhesive is less than 2%, and the opacity of the cured and aged adhesive is less than 1%". The subcombination has separate utility such as use as a composition for making a molded object or use as coating.

Inventions III and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process such as injecting adhesive between one layer and another layer.

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed can be used in a materially different process of using that product such as using the composition to make a molded object or in a process of forming a protective coating.

- 3) During a telephone conversation with Scott Pribnow on 9-24-03 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 23-41 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
- 4) Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Komiya et al

7) **Claims 1-15 and 17-22 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Komiya et al (US 6319603).**

Komiya et al discloses a liquid curable resin suitable as a photo-curable adhesive comprising:

- a poly(meth)acrylate polymer having a weight average molecular weight of at least 5000 (**polyacrylate component**);
- a ring opening polymerizable monomer containing at least one epoxy group (**epoxy component**) and
- a cationic photopolymerization initiator (**cationic initiator**).

Hence, Komiya et al discloses all of the claimed components of the adhesive composition. With respect to properties of the adhesive, Komiya contains the following description: (1) "...optical characteristics must not change in ... adhesives used to join quartz glass and optical fibers" (col. 1 lines 46-50) and (2) "an object of the present invention is to provide a liquid curable composition which undergoes the least change in characteristics when exposed to heat and light, maintains its transparency ..., exhibits superior mechanical characteristics and excellent adhesive properties" (col. 1 line 65 to col. 2 line 3 / emphasis added).

As to the limitation of "wherein the uncured, curable adhesive can be cured to form an adhesive comprising an interpenetrating polymer network", note the disclosed *grafting reaction* between the second component (the ring opening polymerizable monomer containing an epoxy group) and the first component (the poly(meth)acrylate polymer). See col. 3.

In claim 1, the limitation of "wherein the uncured adhesive is optically clear such that the luminous transmission of the composition is greater than 90%, the haze of the

composition is less than 2%, and the opacity of the composition is less than 1%, ... and wherein after aging the cured adhesive at 90°C for 500 hours the luminous transmission of the cured and aged adhesive is greater than 90%, the haze of the cured and aged adhesive is less than 2%, and the opacity of the cured and aged adhesive is less than 1%" is *inherent* in Komiya et al' adhesive. The same is true for claim 2. In any event: It would have been obvious to provide the polyacrylate component, epoxy component and cationic initiator of Komiya et al so as to have the above properties since Komiya suggests using those components in the adhesive such that the *adhesive is optically clear / transparent before and after curing* (i.e. the optical properties of the adhesive are maintained). See at least the above noted quoted portions of Komiya et al.

As to claim 3, Komiya et al's adhesive is single phase (a single liquid resin composition). As to claims 4-7 and 15, note the grafting reaction disclosed by Komiya et al. As to claims 8, 9 and 17, note the (meth)acrylate compounds disclosed by Komiya et al for forming the poly(meth)acrylate polymer (see col. 2 line 22 to col. 3 line 65). As to claim 10, note the monomer containing at least one epoxy group described at col. 5 line 31+. As to claims 11-12, note the cationic initiator described at col. 6 line 51 to col. 7 line 50. As to claim 13, Komiya et al also suggests using a photo-sensitizer (see col. 7 lines 51-56). As to claim 14, Koyima et al also suggests using a radial photoinitiator (see col. 4 lines 32-56). As to claims 18 and 19, note Komiya's disclosure of also using polyfunctional monomers. Komiya does not appear to anticipate claim 20. As to claim 20, it would have been obvious to use "hexanediol diacrylate or

trimethylolpropane triacrylate since Komiya suggests also using polyfunctional monomers and each of hexanediol diacrylate or trimethylolpropane triacrylate are taken as well known polyfunctional monomers. As to claims 21 and 22, Komiya suggests using 10-100 weight percent of the compound containing the epoxy group.

8) **Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komiya et al (US 6319603) in view of Bennett et al (US 5773485).**

As to claims 15 and 16, it would have been obvious to include acryloxy benzophenone in the adhesive composition of Komiya et al in view of Bennett et al's teaching to use acryloxybenzophenone to provide adhesive with high shear strength.

Remarks

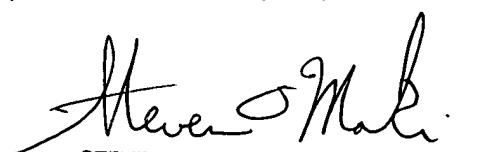
9) The remaining references are cited of interest.

10) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is 703-308-2068. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven D. Maki
September 30, 2003


STEVEN D. MAKI
PRIMARY EXAMINER
GROUP 1300
AU 1733
9-30-03